

PATENT CLAIMS

1. An apparatus for combining first and second image data of an object, comprising
- 5 • an ultrasound detector for repeatedly generating the first image data of the object;
 - means for storing and/or receiving the second image data of the object, for example image data generated by a computer tomography, a magnetic resonance, a positron emission
 - 10 tomography or an X-ray imaging device;
 - a combination device which is adapted to combine the first and second image data of the object; and
 - an image data connection from the ultrasound detector to the combination device for transferring the first image data;
- 15 wherein the ultrasound detector is connected to the combination device by a geometry data connection, wherein the geometry data connection, the ultrasound detector and the combination device are adapted to transfer geometry data additionally to the first image data from the ultrasound detector to the combination device and wherein the geometry data comprise one or
- 20 more than one of the following type of information:
- a) information concerning at least one spatial dimension of an image unit of the first image data, in particular of a pixel;
 - b) information concerning an image position of at least a part of an image, which is represented by the first image data, relative to a
 - 25 reference point of the ultrasound detector or relative to a reference point or reference object in the ultrasound image;
 - c) information concerning an orientation of the ultrasound image relative to a reference point or a reference object of the ultrasound detector;
 - and

d) information concerning a region or an area, which is actually covered by an ultrasound image that is represented by the first image data.

2. The apparatus of claim 1, wherein the image data connection is adapted to
5 directly transfer the first image data in a digital format from the ultrasound detector to the combination device.
3. The apparatus of claim 1 or 2, wherein the ultrasound detector comprises a
10 control unit for controlling an image data generation of the ultrasound detector and wherein the control unit is adapted to generate at least a part of the geometry data.
4. A method of combining first and second image data of an object, wherein
15 – the first image data of the object are repeatedly generated by an ultrasound detector;
– the second image data of the object are generated separately, for example the second image data have been recorded earlier by a computer tomography, a magnetic resonance, a positron emission tomography or an X-ray imaging device;
20 – the first image data are transferred from the ultrasound detector to a combination device;
– the combination device is adapted to combine the first and second image data of the object;

- geometry data are transferred in addition to the first image data from the ultrasound detector to the combination device, wherein the geometry data comprise one or more than one of the following type of information:
 - a) information concerning at least one spatial dimension of an image unit of the first image data, in particular of a pixel;
 - b) information concerning an image position of at least a part of an image, which is represented by the first image data, relative to a reference point of the ultrasound detector or relative to a reference point or reference object in the ultrasound image;
 - c) information concerning an orientation of the ultrasound image relative to a reference point or a reference object of the ultrasound detector; and
 - d) information concerning a region or an area, which is actually covered by an ultrasound image that is represented by the first image data.

5. The method of claim 4, wherein the geometry data comprise information concerning a detector position of the ultrasound detector relative to a position sensor and/or relative to a signal source, for determining a location and/or an orientation of the ultrasound detector.

6. The method of claim 4, wherein the geometry data are generated by and/or transferred from a control unit of the ultrasound detector and wherein the control unit is adapted to control an image data generation of the ultrasound detector.

7. The method of claim 4, wherein the combination device continuously displays a first image of the object corresponding to the repeatedly generated first image data and continuously displays a second image of the object corresponding to the second image data, wherein the orientation and/or scaling of at least a part of the object is identical in the first and in the second image.

8. The method of claim 4, wherein at least a part of the geometry data is repeatedly transferred to the combination device, in particular every time when the first image data are generated.